

**REMARKS**

In the Office Action, claims 1-38 were rejected. All of the pending claims are believed to be allowable over the prior art references cited by the Examiner. Reconsideration and allowance of all pending claims are respectfully requested in view of the arguments summarized below.

**Rejections Under 35 U.S.C. § 103**

In the Office Action, claims 1, 3-5, 7, 11, 19, 22, and 35-37 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kieffer et al., U.S. Patent Application No. 2004/0037392 (hereinafter "Kieffer") in view of Tillman et al. titled "Survival of Mammalian Cells Exposed to Ultrahigh Dose Rates from a Laser-produced Plasma X-ray Source" (hereinafter "Tillman"). Claim 10 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Kieffer in view of Tillman and further in view of Tsuno et al., U.S. Patent Application No. 2004/0246610 (hereinafter "Tsuno"). Claims 12-18, 23-34, and 38 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kieffer and Tillman and further in view of Dafni et al., U.S. Patent No. 5,966,422 (hereinafter "Dafni"). Claims 2 and 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kieffer and Tillman and further in view of Ono et al., U.S. Patent No. 5,696,804 (hereinafter "Ono"). Claim 6 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Kieffer and Tillman and further in view of Hirano et al., U.S. Patent No. 5,949,849 (hereinafter "Hirano"), and claim 8 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Kieffer, Tillman in view of Nelson U.S. Patent No. 5,982,847 (hereinafter "Nelson") and further in view of Beeson et al., U.S. Patent No. 5,696,865 (hereinafter "Beeson"). Claim 9 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Kieffer and Tillman and further in view of Kondo et al., U.S. Patent No. 6,324,255 (hereinafter "Kondo"), and claim 21 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Kieffer and Tillman and further in view of Hunter et al. titled "Design and Characterization of a Laser-based Instrument to treat Hemangiomas Using Spectroscopic Feedback: The Smart Scalpel" (hereinafter "Hunter"). The Applicants

respectfully traverse the present rejections under 35 U.S.C. § 103(a) and request reconsideration by the Examiner of the present claims so rejected.

Applicants respectfully assert that the present invention, as recited in independent claims 1, 11, 23, 28, and 35 is patentable over Kieffer, Tillman and other references, alone or in combination. The Kieffer reference discloses a method of generating x-rays, comprising rotating a target 16 within an X-ray generation chamber 18, and focusing a laser beam 14 onto a focal point through which said target rotates. In addition, the Kieffer reference discloses moving the target between laser shots so as to expose a fresh surface of the target to each new laser shot. *However, Applicants respectfully submit that Kieffer fails to teach, disclose, or suggest an X-ray bulb of the type described in the present application. In particular, Kieffer fails to teach, disclose, or suggest a focusing surface formed by a coating disposed on at least a part of a surface of an X-ray bulb envelope. See, Application, Figs. 4 and 5, and paragraphs 36-45.*

In particular, the Applicants respectfully refer the Examiner to the recent and legally controlling en banc decision *Phillips v. AWH Corp.* in which the Federal Circuit determined “the extent to which we should resort to and rely on a patent’s specification in seeking to ascertain the proper scope of its claims.” *Phillips v. AWH Corp.*, 75 U.S.P.Q.2d 1321, 1325 (Fed. Cir. 2005) (en banc). The Federal Circuit noted that the ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art at the time of the invention. *Id.* at 1326. A person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but also in the context of the entire patent, including the specification. *Id.*

In particular, the Federal Circuit noted that the claims must be read in view of the specification of which they are a part. *Id.* at 1327. The Federal Circuit noted that the specification is always highly relevant to claim construction, usually dispositive, and the

single best guide to the meaning of a disputed term. *Id.* The Federal Circuit recognized that the Federal Circuit, its predecessors, and, indeed, even the Supreme Court, have “long emphasized the importance of the specification in claim construction.” *Id.* In possibly the best summary of the importance of the specification, the Federal Circuit relied upon the *Renishaw* decision, which states:

Ultimately, the interpretation to be given a term can only be determined and confirmed with full understanding of what the inventors actually invented and intended to envelop with the claim. The construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be, in the end, the correct construction.

*Id.* at 1328-29.

With this controlling precedent in mind, the Applicants respectfully submit that one of ordinary skill in the art would not read the relevant portions of the present specification, i.e., paragraphs 36-45 and the accompanying figures, and erroneously conclude that the X-ray generation chamber 18 disclosed in *Kieffer* was a bulb. Indeed, the Applicants respectfully submit that one of ordinary skill in the art under the guidance of the present application would find the *Kieffer* reference, or any other reference relied upon by the Examiner, to be devoid of any teaching of an X-ray bulb.

Furthermore, even if the *Kieffer* reference were by chance believed to disclose an X-ray bulb, the reference does not disclose a focusing surface formed by a coating disposed on a surface of the envelope of the X-ray bulb. As noted above, the *Kieffer* reference does not disclose an X-ray bulb as would be understood by one of ordinary skill in the art having the benefit of the present specification. In particular, the *Kieffer* reference does not disclose a bulb envelope or bulb coating as recited in the present claims so as to form a focusing surface. The Examiner acknowledges this and states that *Kieffer* fails to teach, disclose or suggest the generation chamber to have at least a

partially rounded surface so as to comprise a bulb envelope. Additionally, the Examiner acknowledges that Kieffer fails to teach, disclose or suggest the bulb envelope to have a coating on its curved surface so as to form a focusing surface for the laser.

The Examiner cites Tillman to obviate these deficiencies in the teaching of Kieffer. However, Tillman fails to obviate these deficiencies in the teachings of Kieffer. The Examiner states that the “Tillman teaches a curved parabolic mirror surface disposed within the interior surface of an envelope of an X-ray generation apparatus to focus the laser onto target to produce x-rays.” Clearly, such an internally disposed mirror is not the same as a curved and coated surface of the envelope itself that forms a focusing surface. The reference, therefore, does not teach or suggest a curved and coated surface of an X-ray bulb envelope that forms a focusing surface. Consequently, the combination of Kieffer and Tillman simply cannot suggest to one skilled in the art all of the recitations of claims 1, 11, 23, 28, and 35.

Further, the Kieffer and Tillman references cannot be fairly combined as suggested by the Examiner. The Examiner states that “it would be obvious to one of ordinary skill in the art at the time of the invention to use the curved mirror surface of Tillman in the bulbous x-ray tube of Kieffer to reduce the number of parts required for focusing of the laser light.” The motivation for the suggested combination proposed by the Examiner is not only entirely absent from either reference, it also appears to be entirely false. In particular, the Kieffer reference discloses an adjustable parabolic mirror 32 external to the chamber 18 that focuses the laser beam that enters the chamber 18. Kieffer, Fig. 1, paragraph 50. In other words, Kieffer provides for a parabolic mirror 32 to aim and focus the laser, the mirror, however, is external to the chamber 18. Merely moving that mirror into the chamber, as the Examiner appears to believe that Tillman teaches, in no way reduces the number of parts required to focus the laser, i.e., both references disclose the use of a parabolic mirror. Kieffer, paragraph 50; Tillman, description of Fig. 1. Therefore, the Examiner’s motivation appears to be nonexistent.

Both references disclose the use of a parabolic mirror to focus a laser, i.e., there is no reduction in the number of parts. Further, there is no reason provided by either reference to suggest that one location (inside or outside the target chamber) is preferable to the other. Absent a meaningful motivation, of which none appears to be present, there is no reason to modify the Kieffer reference in the manner suggested by the Examiner. However, even if such a motivation were present, as noted above, simply moving the parabolic mirror of Kieffer to the interior of the target chamber *still* does not correspond to the recited focusing surface formed by a coating on a part of the surface of the envelope of the X-ray bulb, as generally recited in the present claims. Therefore, the combination of references relied upon by the Examiner does not disclose all of the recited elements of claims 1, 11, 23, 28, and 35 or of those claims depending therefrom.

In response to the Applicants' previous comments to this effect, the Examiner stated that: "Kieffer already teaches the use of a curved, focusing mirror to focus the laser. And Tillman is relied upon for teaching the use of a mirror coating within an envelope surface for focusing of x-rays. By using the coated mirror surface of Tillman within the apparatus of Kieffer in order to focus the laser without the need of an additional, external mirror, there would be a reduction in parts". See, Office Action, page 19. The Applicants take exception to these comments. Applicants respectfully submit that Tillman disclose no coating of an envelope surface. Clearly, "disposing a parabolic mirror within a chamber to focus laser" is not same as "coating the envelope of a chamber to act as a focusing mirror to focus laser". The mere fact that Tillman discloses a parabolic mirror within an x-ray generation apparatus is not sufficient to teach or suggest to one skilled in the art the act of providing a curved and coated surface of the envelope itself so as to form a focusing surface. Indeed, the reference teaches away from such an arrangement so as to provide an envelope configured to focus the laser beam onto the target. The parabolic mirror disclosed in Tillman is placed within the X-ray generation chamber. It does not relate at all to an X-ray bulb, as described in the present application, where the envelope of the bulb itself is configured to focus the incoming laser beam onto

the target. Moreover, Applicants assert that placing the mirror inside or outside of the chamber does not and cannot lead to reduction in parts.

In short, the Applicants respectfully submit that none of the references relied upon by the Examiner shows the structure of the “X-ray bulb” as disclosed and claimed in the present application. Moreover, the Applicants respectfully submit that the Examiner relies on an interpretation of an “X-ray bulb” that is unreasonable in view of the present application, and is thus impermissible. M.P.E.P. § 2111. Accordingly, *even if combined*, the Kieffer and Tillman references provide no teaching whatsoever of a bulb envelope or a bulb coating as recited in the claims. Therefore, the combination of references relied upon by the Examiner does not disclose all of the recited elements of claims 1, 11, 23, 28, and 35 or of those claims depending therefrom.

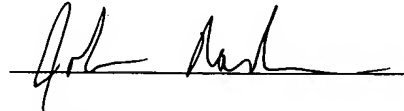
In view of the forgoing considerations, the Examiner has failed to establish a *prima facie* case of obviousness of claims 1, 11, 23, 28, and 35. These claims, and the claims depending therefrom are therefore believed to be clearly patentable over the cited combination, and over combinations with the other secondary references. Thus, it is respectfully requested that the rejections of claims 1-38 under 35 U.S.C. §103(a) be withdrawn.

**Conclusion**

In view of the remarks set forth above, Applicants respectfully request allowance of the pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

Date: January 22, 2007

A handwritten signature in black ink, appearing to read 'John M. Rariden', is written over a horizontal line.

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